

Central Intelligence Agency



Washington, D.C. 20505

DIRECTORATE OF INTELLIGENCE

MEMORANDUM FOR: Charles Boykin
Deputy Assistant Secretary
for Intelligence
Department of Energy

FROM: [redacted]
Director of Global Issues

SUBJECT: The Oil Market Outlook Through 1988:
Can OPEC Wait for the Tide to Turn? [redacted]

Attached is an assessment of the oil market through 1988 prepared by members of my staff. I hope you find it useful in light of the upcoming OPEC meeting on 22 July. If you or members of your staff have any questions concerning the report, please call [redacted]

Attachment:

The Oil Market Outlook Through 1988:

Can OPEC Wait for the Tide to Turn? [redacted]

GI M 85-10191, July 1985, [redacted]

SUBJECT: The Oil Market Outlook Through 1988:
Can OPEC Wait for the Tide to Turn?

OGI/SRD/EMB/gmf [] (15 July 1985)

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15 July 1985

The Oil Market Outlook Through 1988:
Can OPEC Wait for the Tide to Turn?

Summary

We expect the oil market to remain weak at least through 1986, causing continued downward pressure on prices. OPEC will be hard-pressed to prevent a fall in prices over the period given the negative market outlook. Non-Communist oil consumption will remain fairly steady, while non-OPEC supplies rise and conservation and substitution occur at a rapid pace. As a result, demand for OPEC oil probably will approximate only 16-17 million b/d in both 1985 and 1986. Under these circumstances, the Saudis remain the key to preventing a price decline, but Riyadh has stated it will no longer act as OPEC's swing producer and has threatened to boost output if other members continue to violate guidelines. Financial pressures will make it difficult for other producers to remain within their quotas for any extended period and, at a minimum, we expect further small declines in oil prices over the next two years. If Riyadh abandons its price management role and a price war ensues, oil prices would tumble--probably to well below \$20 per barrel. We believe the results of a price decline would generally be favorable, although economic and political adjustments would be required. If OPEC gets through the next 12 months without a price collapse, price pressures could ease in the 1987-1988 period if demand for OPEC oil rises very gradually as most forecasters expect. Even under this case, however, ample capacity should keep market conditions soft. The expected erosion in real oil prices over the period probably will slow conservation and substitution, hastening a return to dependence on insecure Persian Gulf oil supplies and heightening the vulnerability of the developed nations to major supply interruptions towards the end of the decade. [redacted]

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This memorandum was prepared by [redacted]
 Energy Markets Branch, with a contribution from [redacted]
 International Finance Branch, Office of Global Issues. The
 information contained herein is updated to 15 July 1985.
 Comments may be directed to [redacted] Chief, Strategic
 Resources Division, [redacted]

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Introduction

Weak oil demand, rising non-OPEC supplies, and substantial excess production capacity in OPEC countries continue to exert substantial downward pressure on oil prices. A nearly 50 percent drop in demand for OPEC oil since 1979 has produced severe strains within the organization. Although OPEC members established three production allocation systems and twice reduced official prices over the last three years, the unwillingness of most members to adhere to production and price guidelines has kept prices soft. As OPEC's swing supplier, Saudi Arabia has borne the brunt of demand cuts, but with production averaging only about 2.5 million b/d in recent months, Riyadh is unwilling to single-handedly support the current price structure. OPEC now has far less leverage to deal with threats to its price structure, but decisions taken by these producing countries will continue to play a major role in determining oil prices. [REDACTED]

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Market Pressures Build

Following a 2 percent rise in non-Communist oil consumption last year to 45 million b/d, consumption so far in 1985 is running below year-earlier levels and more than 500,000 b/d less than most oil companies had expected. The slowdown in economic activity in the United States, continued conservation gains, and substitution away from oil contributed to an estimated 1-2 percent drop in oil use in the industrialized countries last winter compared with year-earlier levels. Preliminary data indicate second quarter oil sales in the industrialized countries were 3 percent below year earlier levels. The strong US dollar also depressed West European oil demand by pushing up oil prices in local currencies (Table 1). [REDACTED]

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Lower fuel oil use is the primary factor behind the drop in total consumption. First quarter data indicate fuel oil sales in the major industrialized countries were 15-20 percent below year-earlier levels while other key product sales were above 1984 levels. Although the sharp decline in heavy fuel oil use partly reflects the end to abnormally strong demand from the United Kingdom because of the coal miner's strike, end-use demand for heavy fuel oil in all the major consuming countries is declining. Complete data on recent oil consumption in less developed countries (LDCs) are unavailable but fragmentary information and industry data suggest that LDC oil use this year is up a few hundred thousand barrels per day. Small increases in non-Communist consumption, however, continue to be more than offset by rising non-OPEC supply which approximated 26.8 million b/d during the first half of 1985, up about 500,000 b/d from average 1984 levels. [REDACTED]

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As a result, only six months after OPEC's most recent agreement on price and production levels--an agreement which followed several months of intense downward pressure on oil prices and a series of emergency meetings by OPEC members--spot

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Table 1
Crude Oil Cost Per Barrel
in Local Currency^a

	February 1983	January 1985	Percent Change February 1983/ January 1985
United States	34	28	-17.6
Japan (yen)	8,032.2	7,125.2	-11.3
France (franc)	234	270.8	15.7
West Germany (DM)	82.5	88.7	7.5
Italy (Lira)	47,532	54,586	14.8
United Kingdom (L)	22.2	24.8	11.7
Netherlands (guilder)	91.0	100.3	10.2
Spain (peseta)	4,411.8	4,905.6	11.2
Greece (drachma)	2,840.6	3,620.4	27.5

^aPrices based on Arab Light Crude



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prices for many crudes are again more than \$2 below official levels (Figure 1). Over production and price discounting by almost all OPEC members, combined with low consumption, forced a sharp decline in Saudi oil production and reduced Riyadh's ability to compensate for other members' cheating on OPEC agreements. The work of the auditing firm of Klynveld Kraayenhof clearly has not yet had the hoped for effect on producer discipline, although weak demand pushed OPEC crude oil production to 14.5 million b/d in June¹ (Table 2, Figure 2 and Appendix 1). We believe short-term market pressures are likely to intensify given the inconclusive OPEC meeting in early July that increased market perceptions of disarray in OPEC. The organization plans to meet on 22 July where it will again attempt to stabilize prices. []

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The Outlook For OPEC Through 1986--No Relief in Sight

Non-Communist Consumption

We expect non-Communist oil consumption to register little or no growth in both 1985 and 1986 in response to slower economic growth and continued conservation and substitution. Under these circumstances, total oil consumption--excluding refinery gain--will approximate 45 million b/d in 1985 and 1986; our forecast is in line with recent industry estimates (Tables 3 []). On the basis of the CIA linked econometric model and industry assessments, OECD energy consumption is assumed to rise by roughly 1.5 million b/doe (barrels per day oil equivalent) in 1985 and 1.4 million b/doe in 1986 (Appendix 2). Oil consumption in OECD countries as a group, however, is expected to remain at or below 1984 levels in both 1985 and 1986 in response to continued substitution. West European oil use is expected to drop in both years in response to substitution and relatively high prices due to the strength of the US dollar. Consumption in LDC countries is expected to rise by a few hundred thousand b/d in both years. []

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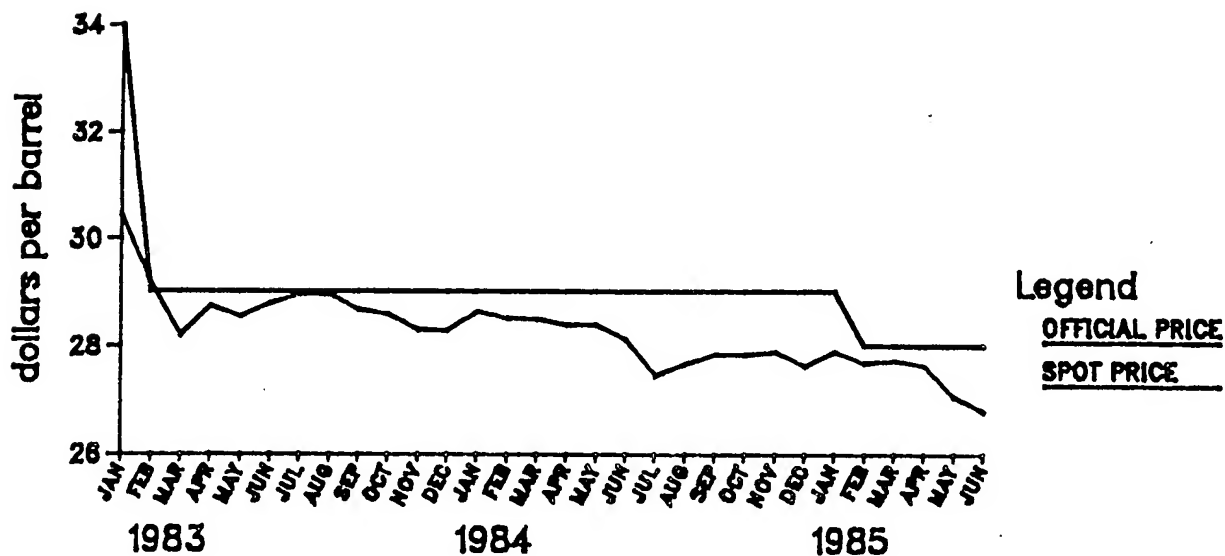
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¹OPEC hired the auditing firm of Klynveld Kraayenhof and Company of the Netherlands to provide timely, accurate figures on members' production levels in the hope that additional transparency in OPEC country activities in the oil market will encourage stronger adherence to OPEC agreements. OPEC members agreed to receive visiting auditing teams and to make available requested documentation. Although the work of the auditors so far probably has not much affected production and pricing policies of OPEC members, the establishment of an objective reporting system will allow the singling out of OPEC members who have violated agreements and could cause the political fallout from any sharp price decline to be focused on these countries. []

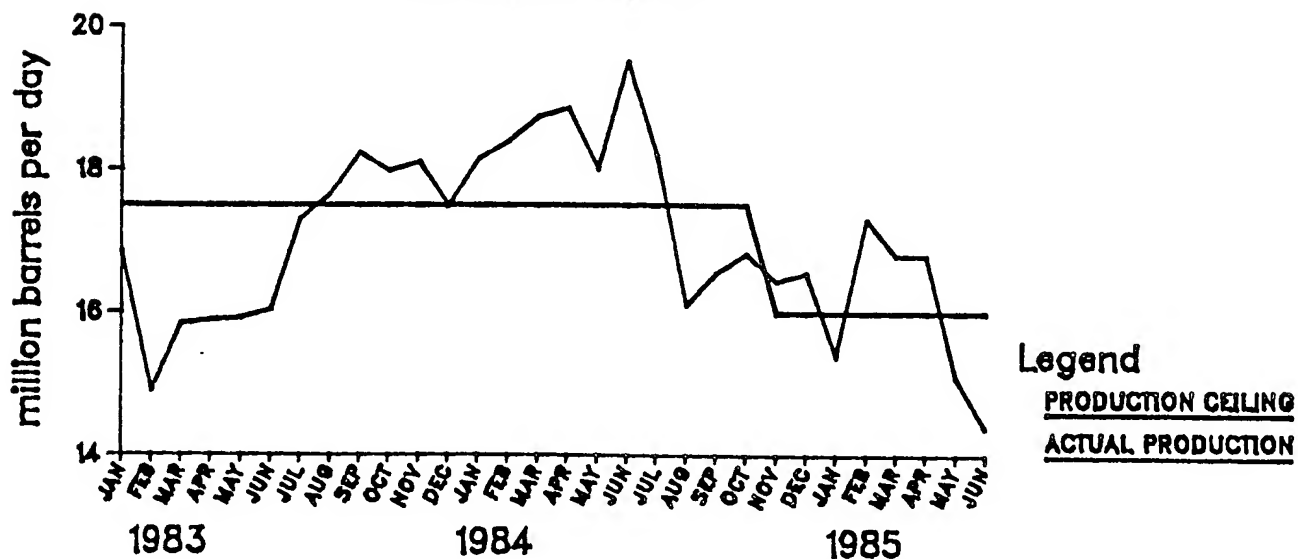
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FIGURE 1

OPEC Price and Production Trends
ARAB LIGHT CRUDE PRICES



OPEC: ACTUAL CRUDE OIL PRODUCTION VERSUS
 PRODUCTION CEILING



1983
 FEBRUARY - OPEC agrees to reduce benchmark oil price \$5 per barrel and set crude oil production ceiling of 17.5 million b/d.

1984
 MARCH-JUNE - Iraqi-Iranian attacks on oil-tankers keep demand for OPEC oil high.
 JULY - Excess inventories, continued high OPEC production and rumored Saudi barter deal causes sharp fall in spot prices.
 OCTOBER - North Sea producers and Nigeria cut oil prices \$1.35 - \$2 per barrel; OPEC holds special ministerial meeting, cuts production ceiling to 16 million b/d.
 DECEMBER - After several false starts, OPEC agrees to realign price differentials. Price of former benchmark crude, Arab Light, falls \$1 per barrel. OPEC members also agree to retain an independent auditor to monitor members' production.

Table 2OPEC: Crude Oil Production
(million b/d)

	<u>Quota</u>	<u>1984</u> <u>Avg</u>	<u>1985</u>			
			<u>First</u> <u>Qtr</u>	<u>Apr</u> <u>Avg</u>	<u>May</u> <u>Avg</u>	<u>Jun</u> ^b <u>Avg</u>
Total:	16.00	17.7	16.5	16.8	15.2	14.5
Algeria	0.66	0.7	0.7	0.7	0.7	0.7
Ecuador	0.18	0.3	0.3	0.3	0.3	0.3
Gabon	0.14	0.2	0.2	0.2	0.2	0.2
Indonesia	1.19	1.4	1.3	1.3	1.3	1.3
Iran	2.30	2.4	2.2	2.9	2.5	2.3
Iraq	1.20	1.2	1.2	1.3	1.3	1.3
Kuwait ^a	0.90	1.1	1.1	1.1	1.0	0.9
Libya	0.99	1.1	1.0	1.1	1.1	1.1
Nigeria	1.30	1.4	1.6	1.6	1.4	1.3
Qatar	0.28	0.4	0.3	0.3	0.3	0.3
Saudi Arabia ^a	4.35	4.7	3.9	3.6	2.7	2.2
UAE	0.95	1.2	1.2	1.2	1.2	1.1
Venezuela	1.56	1.7	1.6	1.6	1.5	1.5

^aNeutral Zone output is divided equally between Saudi Arabia and Kuwait and included in their production figures.

^bPreliminary

Note: Columns may not add to totals shown due to rounding.



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Figure 2
OPEC Countries: Strategies to Enhance Sales

	<u>Saudi Arabia</u>	<u>Iran</u>	<u>Iraq</u>	<u>Kuwait</u>	<u>UAE</u>	<u>Qatar</u>	<u>Algeria</u>	<u>Venezuela</u>	<u>Indonesia</u>	<u>Nigeria</u>	<u>Ecuador</u>	<u>Libya</u>	<u>Gabon</u>
Exceeding Quota		X	X	X	X	X	X	X	X	X	X	X	X
Spot Sales		X	X		X	X					X		
Processing Agreements								X		X		X	
Reclassifying Light Crude as Condensate							X	X	X				
Barter/Countertrade	X	X	X		X	X			X	X		X	
Preferential Sales to Third World Countries	X	X											
Transportation Subsidies		X	X	X									
Product Exports	X			X			X	X	X			X	
Open Discounting		X									X		
Extended Credit		X			X	X							
Producer Allowance (easier tax policies)					X				X	X		X	



Table 3
Non-Communist Oil Demand and Supply Outlook*
(million b/d)

	<u>1984</u>					<u>1985</u>					<u>1986</u>
	<u>Quarters</u>				<u>Year</u>	<u>Quarters</u>				<u>Year</u>	<u>Year</u>
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>		<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>		
Consumption	46.8	44.1	43.7	45.8	45.1	46.8	43.3	43.6	46.0	44.9	44.9
Inventory Change	-1.3	2.0	.6	-1.3	0	-2.3	.3	.2	-1.0	-0.6	--
Supply	45.5	46.1	44.3	44.5	45.1	44.5	43.6	43.8	45.0	44.3	44.9
OPEC	19.6	20.0	18.2	17.8	18.9	17.8	16.7	16.8	17.7	17.2	17.0
non-OPEC	25.9	26.1	26.1	26.7	26.2	26.7	26.9	27.0	27.3	27.1	27.6

*CIA estimates.

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Non-OPEC Oil Supplies

[redacted] non-OPEC oil production including natural gas liquids and net Communist exports will increase nearly 1 million b/d in 1985 to about 27.2 million b/d (Table 5). About 500,000 b/d of this increase is expected to occur in the non-OPEC LDCs [redacted] Brazil, Egypt, India and Oman probably will account for approximately three-fourths of the increase in LDC output, while smaller gains in a number of other developing countries will add more than 100,000 b/d to non-OPEC oil supplies. Oil production in the OECD countries combined also will increase--by 300,000-500,000 b/d [redacted] due primarily to higher North Sea and US output. [redacted]

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Inventories

We estimate that primary oil stocks at the end of June 1985 stood at 4.0 billion barrels--enough to last about 92 days--and 100-200 million barrels above planned levels. Government-owned stocks account for about 600 million barrels of the total or about 14 days supply. Expectations of lower oil prices and continued belt tightening by the oil industry suggest oil companies will attempt to pare excess inventories in 1985. We assume non-Communist oil stocks will decline by 600,000 b/d in 1985 and will hold steady in 1986. [redacted]

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Demand for OPEC Oil

Given our estimates of consumption, non-OPEC oil production and inventory behavior, demand for OPEC oil--including about 1.3 million b/d of natural gas liquids--will approximate only 17 million b/d in 1985 and 1986, causing demand for OPEC crude to remain at or below OPEC's current 16 million b/d ceiling. This forecast indicates revenue pressures on OPEC members will mount; we estimate that at current prices OPEC production would have to average nearly 21 million b/d in 1986 to prevent a further decline in the foreign reserves of member countries (Table 6). Moreover, demand for OPEC crude could fall substantially below the quota in response to seasonal changes in consumption. The already sharp fall in Saudi oil production has left Riyadh little

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Table 5Non-OPEC Production--Major Producers

(million b/d)

	<u>1984</u>	<u>1985</u>	<u>1986</u>
Total Non-OPEC supplies	26.2	27.2	27.6
of which			
United States	10.4	10.6	10.6
North Sea	3.5	3.8	3.9
Canada	1.8	1.8	1.8
Other OECD	1.0	1.1	1.1
Mexico	2.9	2.9	3.0
Other LDC	5.0	5.5	5.8
Net Communist Exports	1.6	1.5	1.4

Note: Columns may not add due to rounding.



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Table 6OPEC: Estimated 1986 Minimum Desired Oil Production¹

(million b/d)

Algeria	1.2
Ecuador	0.3
Gabon	0.2
Indonesia	1.6
Iran	2.5
Iraq	1.3
Kuwait ²	0.9
Libya	1.2
Nigeria	1.5
Qatar	0.3
Saudi Arabia ²	6.2
United Arab Emirates	1.2
<u>Venezuela</u>	<u>2.2</u>
Total	20.6

¹Oil production levels--including natural gas liquids--required to maintain foreign reserves constant in 1986.

²Includes share of Neutral Zone production.

room to reduce output further; since 1979 Saudi oil production has fallen almost 7 million b/d or roughly half of the drop in OPEC production during the period (Figure 3). If the decline in consumption continues, pressures on OPEC will increase. We estimate every percentage point change in consumption results in a 500,000 b/d change in demand for OPEC oil (Appendix 3).

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OPEC Wild Cards--Iran and Iraq

Developments in Iran and Iraq over the next 18 months could further exacerbate downward price pressure.

- o Iraq continues its efforts to expand oil exports through construction of additional pipeline capacity. Even if the war continues, completion of Iraq's spurline to Saudi Arabia's East-West pipeline to the Red Sea by early 1986 combined with the expansion of the Iraq-Turkey pipeline by early 1987 will increase Iraqi export capacity by about 1 million b/d. The Iraqi Oil Minister recently reasserted Iraq's entitlement to a production quota of at least 1.8 million b/d, an increase of 600,000 b/d.
- o Iran may also attempt to increase exports even further to raise revenue for the war. We estimate Tehran has the capacity to produce almost 3.5 million b/d.

In the event the war ends, Iran and Iraq could boost combined exports by 2 to 3 million b/d above current levels within several months. The decline in production in these two Persian Gulf countries since 1979 accounts for about 3 million b/d of the fall in total OPEC output, and has been a major, if inadvertent factor in helping the organization to prevent a sharp price decline.

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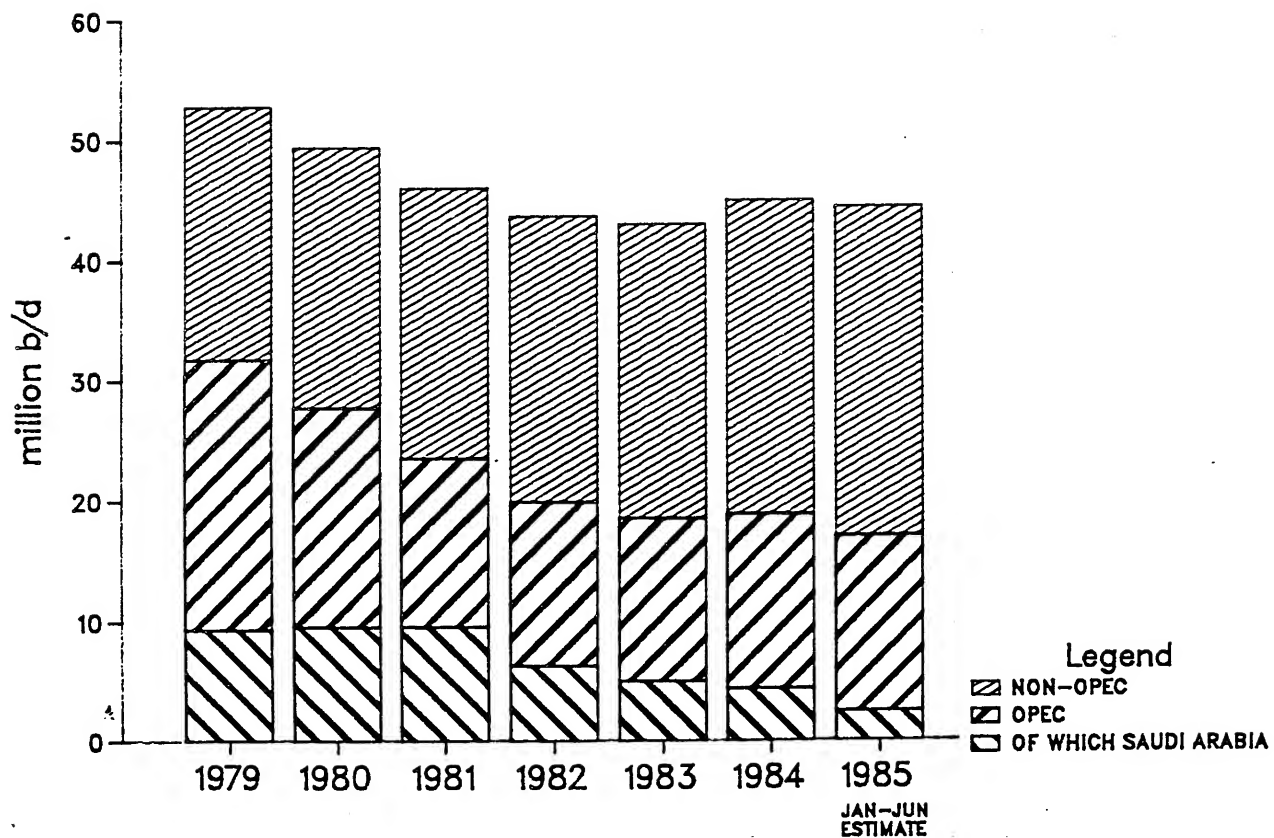
Oil Price Scenarios

The world oil demand outlook suggests OPEC will have difficulty holding the line on prices. While predicting the magnitude and timing of possible oil price declines is difficult, we have looked at several possible scenarios:

Price Stability. Although the organization's options for restoring price stability appear limited, certain developments could enable OPEC to maintain nominal prices.

- o Saudi Arabia maintains its role as swing supplier and is willing to produce at levels far below 4 million b/d.
- o Riyadh's threats that it will stop supporting prices if members continue to violate OPEC price and production guidelines cause some producers to be more cooperative. Iran and Iraq do not push for increases in their quotas.

Figure 3
NON-COMMUNIST OIL SUPPLY



- o The auditors' work on monitoring production and prices encourages greater discipline.

OPEC has demonstrated that at times it can close ranks to defend oil prices. Nevertheless, we believe that it will be difficult for the organization to maintain the current price structure over the next few years unless underlying demand for OPEC oil rebounds in response to a faster than expected increase in oil consumption, or non-OPEC supplies do not reach anticipated levels. [REDACTED]

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Controlled Descent. In this scenario OPEC members continue to undermine the official price structure, forcing a series of mini crises and price cuts.

- o Saudi Arabia engineers several small price cuts that panic other producers, causing temporary periods of renewed OPEC discipline.
- o Nigeria and Ecuador continue to produce above ceiling levels.
- o Iran, Nigeria, the United Arab Emirates, and Ecuador discount oil in response to lower spot prices.
- o Iraq's development of new export capacity encounters no major setbacks and Baghdad begins producing more oil. Saudi Arabia and Kuwait cut back production for the Iraqi account but on balance more OPEC oil enters the market.
- o Demand for OPEC oil remains relatively flat in response to stagnant consumption and moderate increases in non-OPEC supply. [REDACTED]

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Under these circumstances, prices eventually bottom out at \$20-25 per barrel. [REDACTED]

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Price Collapse. OPEC's discipline breaks down completely and members abandon efforts to maintain the price structure.

- o Saudi Arabia stops supporting prices--perhaps by setting a "minimum acceptable production level" and reducing prices as necessary to maintain output--in response to widespread cheating by other OPEC members. Riyadh gambles that a sharp price break will force other producers to be more cooperative and believes a large price decrease is needed to ensure a sustained rebound in oil demand.
- o Iran and Iraq continue to force additional quantities of oil onto the market. Other countries are unwilling to

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absorb the necessary cutbacks and competition for market share among producers becomes unrestricted.

- o Recession or greater than expected conservation and substitution cause oil consumption to fall and forces producers to scramble for market share.
- o Companies attempt to liquidate inventories in expectation of lower prices.

As a result, OPEC members compete openly for market share and prices drop below \$20 per barrel. [redacted]

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We are uncertain how far prices would fall or at what level they would stabilize under this scenario. [redacted]

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[redacted] prices initially could fall to well below \$20 per barrel. Under these circumstances [redacted] conservation and substitution would slow and oversupply would be reduced by cutbacks in production from higher cost producing areas like the United States and newer North Sea fields (Table 7). This also assumes consuming countries do not increase taxes to protect energy investments and promote conservation. [redacted]

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The Saudis have so far shown reluctance to abandon support of the current oil price structure and continue to emphasize the importance of OPEC unity. Despite Riyadh's commitment to date, we cannot rule out that it will follow through with its threat to boost production if pressure on Saudi output levels continues. Even if the Saudis are considering their longer term market concerns, however, the short-term revenue losses to other oil-producers and the associated political costs for the Saudis in forcing a sharp price reduction would be viewed as extremely costly.² [redacted]

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Market Prospects Beyond 1986

The outlook for oil prices in 1987 and 1988 will depend primarily on the way events unfold in 1985 and 1986. Under most circumstances we believe the market will remain soft and real oil prices will continue to fall. Assuming annual economic growth in the OECD averages 2.5-3.0 percent, non-Communist oil consumption is expected by most market forecasters to increase only slowly, perhaps by 1 percent annually or roughly 500,000 b/d. Conservation gains and increases in non-OPEC supplies and substitution away from oil are expected to continue--albeit at a declining rate--in response to falling real oil prices.

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Table 7Comparative Energy Costs
(1984 dollars per barrel oil equivalent)

Conservation	15-20
Coal replaces heavy fuel oil	15-25
Nuclear power	15-25
Secondary/tertiary recovery	15-25
Natural gas	20-25
Current oil price	25-30
Shale oil	40-50
Coal to oil	50-70

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- o Oil production in OECD countries is generally expected to peak in 1986. Almost all industry forecasts predict US production will begin to fall by 100,000 b/d annually. Declines in Soviet oil production are expected to cause at least a 100,000 b/d fall in net Communist oil exports.
- o The weak oil market has slowed exploration in other areas of the non-Communist world. After more than twenty years of annual increases in capital and exploration spending by the oil industry, expenditures outside North America declined about 10 percent in 1983 compared to year-earlier levels. Preliminary data indicate that this trend has continued into early 1985.
- o Most forecasters expect non-oil supplies in the OECD countries will rise at an average annual rate of 1.2 million b/doe during these two years. Lower projections of electricity demand growth and environmental concerns have slowed nuclear power developments. Forecasters expect nuclear power supplies in the major developed nations to rise at an annual average rate of 300,000-400,000 b/d. This compares with gains of 700,000-800,000 b/d in 1984 and 1985. [REDACTED]

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Under these conditions, demand for OPEC oil could increase slowly to perhaps about 18-19 million b/d by 1988 and help encourage producer cooperation. Nevertheless, we expect excess available capacity to keep market conditions soft through 1988 and cause further erosions in real oil prices. A very sharp fall in nominal oil prices in 1985 or 1986 would hasten adjustments in both excess supply availability and demand by slowing substitution and conservation worldwide. [REDACTED]

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Implications

The impact of a moderate decline in nominal oil prices on the world economy would be generally favorable³. In the industrial countries lower oil prices would dampen inflationary pressures and provide opportunities for accelerating economic growth. Oil importing LDCs would tend to benefit directly through lower import prices and indirectly as a result of higher demand for their exports and lower interest rates. Oil exporting countries would suffer from lower revenue and some--especially Egypt and Nigeria--could face heightened financial problems. A \$2-3 per barrel price drop probably would not, however, significantly affect energy conservation or interfuel substitution nor would it make any substantial amount of oil

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production unprofitable. []

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A sharp drop in oil prices, for example to \$20 per barrel or lower, is unprecedented and while it would undoubtedly create substantial benefits it also could create some serious problems. Economic performance in the West would be improved and oil-importing LDCs would receive some respite from their financial burdens, possibly raising prospects for political stability. The Soviet Union would be particularly hard hit if several of the factors which enhanced its trade performance over the last several years--low dollar commodity prices, depressed currency values in Europe, and high energy exports receipts--were reversed. This could lead to lower imports of Western technology and equipment for industrial modernization and possibly the defense sector. []

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At least partially offsetting the gains is the risk that wide fluctuations in energy prices could induce some economic and political instability. Lower prices would seriously exacerbate financial problems in some oil exporting countries like Mexico, Nigeria, Venezuela and Indonesia, []
[] could lead to increased pressure on banks with substantial energy-related loans. In addition, a price collapse could strain moderate, oil-exporting regimes in several regions and threaten US strategic interests by tilting power balances among Arab states toward more radical elements. []

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The impact of a major drop in oil prices on energy security would be equally important. Oil investments and development plans for some non-oil energy fuels would be postponed until the market stabilized--especially if prices fall below \$15 per barrel. Delays in the development of North Sea natural gas could open the door for greater Soviet penetration of the West European gas market in the 1990s. Moreover, interest in energy conservation might lag unless consumer fuel prices were kept high through increased energy taxes. These factors could undo the energy security gains achieved as a result of the responses to the oil price shocks of the 1970s and hasten our return to greater dependence on vulnerable Persian Gulf oil. In any event, industrialized countries will remain vulnerable to major oil supply interruptions, particularly as surplus productive capacity becomes increasingly concentrated in the Middle East. In addition to the risk of a heightened Iran-Iraq war, state supported terrorism could trigger a supply cutoff. At the same time weak market conditions may cause a relaxation of contingency planning in consuming countries over the next few years and increase the West's vulnerability to another major oil supply disruption. []

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Appendix 1
A Changing Market Environment

A number of changes in oil market behavior over the last year and a half added to market volatility and complicated OPEC's efforts to manage oil prices. These factors strain OPEC cohesion and undermine fragile market confidence in the organization's ability to maintain prices.

- o Spot oil deals and barter and countertrade activity accelerated dramatically last year as buyers moved away from generally more expensive term commitments.
- o Increased trading in crude oil futures contracts decreased market emphasis on OPEC's role in setting oil prices. The rising volume of spot transactions increased producer uncertainty about future production and revenue levels and reinforces the need to stay competitive. Moreover, the increased volume of oil traded at other than official prices effectively reduced oil prices. []

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As market pressures increased, OPEC members became increasingly adept at circumventing OPEC production accords:

- o A growing number of OPEC countries began reclassifying light crude oil as condensate in order to increase output while still nominally abiding by OPEC production restraints on crude oil.
- o OPEC countries also exported a growing volume of oil products, often at spot-related prices. These exports are providing several countries--including Algeria, Kuwait and Venezuela--with a relatively easy outlet for discounted oil sales. OPEC product exports will continue to rise over the next two years as more refinery capacity is added, and could approximate rise from the 1984 level of 1.5 million b/d to nearly 3 million b/d in 1987.
- o Although some non-OPEC producers--Mexico and Egypt, for example--initially responded favorably to OPEC overtures to reduce output, the failure of OPEC members to abide by production quotas caused non-OPEC cooperation to be short-lived. Indeed, North Sea countries abandoned official prices in favor of market-related sales prices.
- o Several OPEC members moved substantially away from commitments to restrict output. Nigerian willingness to reduce its official oil prices to raise exports heightened market perceptions of OPEC's loss of market control. []

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Appendix 2
Factors Affecting Oil Demand

Future oil demand is dependent on many variables, including economic conditions, conservation, and substitution. The key assumptions underlying our forecast include:

The Economic Environment. Like most forecasters we expect economic growth in the OECD countries as a group to approximate 3.3 percent in 1985, slightly below 1984 levels. A slowdown in domestic demand in the United States is expected to result in lower export growth for other OECD countries. Economic growth in the OECD is expected to average about 2.5 percent in 1986. These forecasts assume that nominal oil prices remain at about current levels and that the US dollar maintains its current position vis a vis other currencies. []

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Conservation. Energy conservation gains are expected to continue, albeit at a slower rate during the period than experienced in the early 1980s. Many energy saving investments continue to be profitable and the impact of earlier conservation decisions, for example in the design of buildings, machinery and vehicles, is increasing. The move toward the service sector and away from energy-intensive heavy industries in the industrial countries also has dampened energy demand growth in the OECD. On the other hand, efficiency gains--as measured by the energy-to-GNP ratio--have slowed in recent years, partly reflecting falling real energy prices (see Figure). Indeed, where prices have fallen substantially as in the case of gasoline in the United States, there are signs of reduced interest in conservation. []

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Substitution: We expect continued sharp increases in non-oil energy supplies in 1985 and 1986 in OECD countries--mostly in nuclear power, coal and natural gas for use in electricity generation and the industrial sector. We estimate OECD oil consumption last year in both these sectors combined amounted to almost 10 million b/d. On the basis of industry assessments and analysis of non-oil capacity and sectoral consumption trends, we assume non-oil supplies in OECD countries will increase by 1.9 million b/doe in 1985 and 1.4 million b/doe in 1986. Lower economic growth and a slowdown in incremental nuclear power supplies, especially in Western Europe, are largely responsible for the expected smaller increases in non-oil supplies in 1986. Despite the UK coal strike we estimate OECD non-oil supplies rose by about 1 million b/doe last year (see Figure). Overall we project:

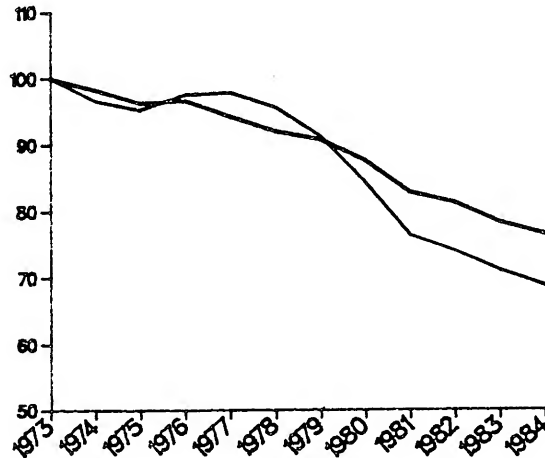
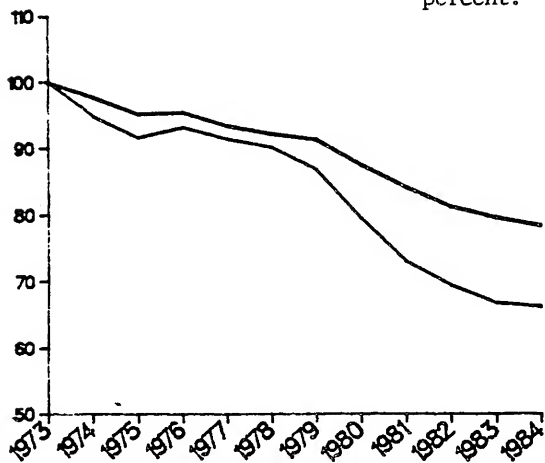
- o Increases in nuclear power in all major regions will account for about half of the anticipated increase in non-oil energy supplies. Although environmental and financing problems are causing the US nuclear program to slow down, the existing construction backlog will lead to increased nuclear output over the next two years and

INDEX 1973=100

The amount of energy and oil needed to produce a unit of GNP has declined sharply since 1973 indicating substantial efficiency improvements and substitution away from oil. From 1973 to 1984, the amount of energy used to produce a unit of GNP fell nearly 20 percent in the OECD. Although the rate of decline slowed last year, OECD countries still cut the amount of energy needed per unit of GNP by roughly 2 percent.

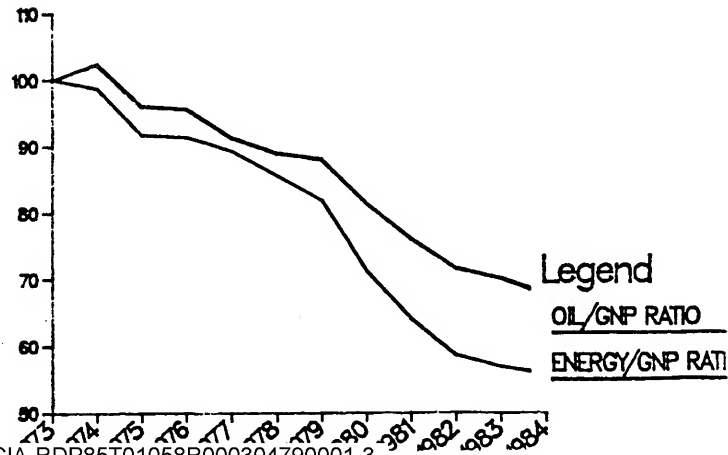
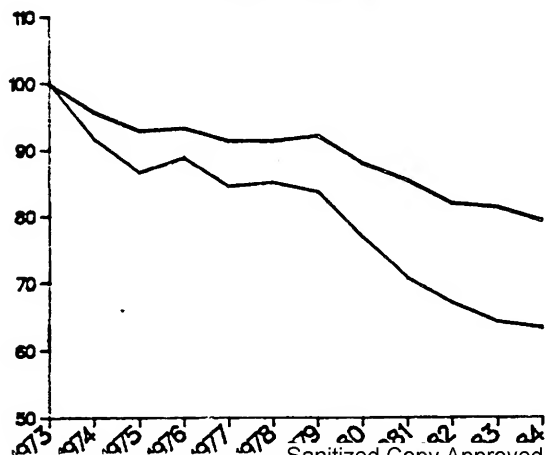
OECD

UNITED STATES



WESTERN EUROPE

JAPAN

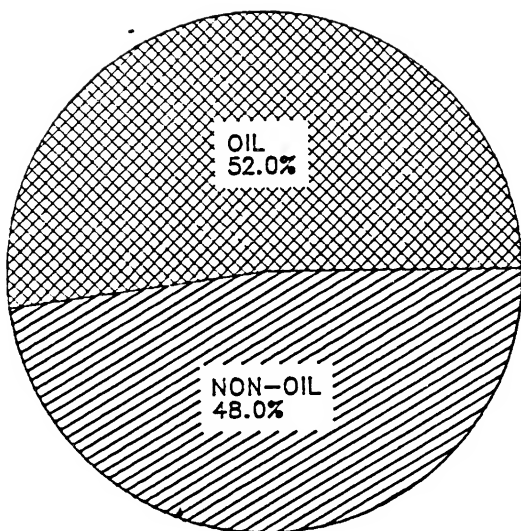


Legend
OIL/GNP RATIO
ENERGY/GNP RATIO

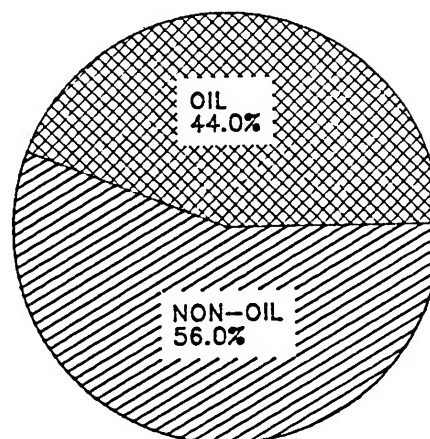
OECD ENERGY CONSUMPTION

(The Effects of Conservation and Substitution)

1979



1985 PROJECTION



[redacted]

nuclear capacity will continue to grow sharply in Western Europe and Japan. Nearly a dozen reactors--capable of backing out heavy fuel oil equal to about 300,000 b/doe--are entering service this year in Belgium, France, West Germany and the United Kingdom.

- o Because coal will retain a significant price advantage in most markets, its use is assumed to rise by about 1 million b/doe over the period--with the United States accounting for most of the increase. Among foreign countries, Japan and some West European countries have the most potential for utility conversion from oil to coal. In Italy, for example, electric generating plants use about 400,000 b/doe of oil, accounting for about half of total energy inputs in power plants.
- o Natural gas demand is expected to rise in Western Europe, Japan and the United States. Faced with surplus gas supplies in the short term, some West European countries are encouraging increased gas use. Japan favors liquefied natural gas (LNG) over coal due to pollution concerns.
- o Electricity from hydro generating plants is expected to rise by a few hundred thousand barrels per day oil equivalent during the period. [redacted]

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Appendix 3
Oil Market Sensitivities

We have looked at the key factors that could alter our projected market outlook and have used the CIA linked econometric model as well as industry assessments to provide a rough estimate of the impact of changes in these variables.

- o A one percentage point change in GNP growth could change non-Communist oil consumption in the first year by about 300,000 b/d from the base case. Although this could mean higher demand for OPEC oil if economic growth exceeds expectations, most forecasters believe a slowdown in economic activity is a more likely alternative scenario.
- o Lower oil prices could cause a larger inventory drawdown over the near term. Should this occur, demand for OPEC oil might drop further and remain at very low levels through the summer months.
- o A \$2 per barrel drop in the price of OPEC oil could raise non-Communist oil consumption in the first year by about 100,000 b/d, although most of the impact of any reduction would take several years to work its way through the economy.
- o The increase in free world consumption from a 10 percent drop in the value of the dollar vis-a-vis other currencies would be negligible--perhaps less than 100,000 b/d.
- o Forecasters have underestimated increases in non-OPEC supply availability in recent years, in part because expectations of future lower prices encourages maximum production now. If non-OPEC supply grows faster than expected, demand for OPEC oil will be lower.
- o Although competitive fuels still enjoy a substantial price advantage over oil, lower crude oil prices could dampen substitution plans. [redacted] a substantial oil price decline would be necessary to significantly slow substitution and conservation. [redacted]

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